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ZUCCHINI YELLOW MOSAIC VIRUS

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Zucchini squash (Cucumis pepo L.) is widely grown in Florida in home gardens and commercial vegetable production areas throughout the state. In the fall of 1981, zucchini plants with mosaic symptoms were collected from several central and north Florida field plots and commercial fields. Most of the diseased plants were infected with watermelon mosaic virus types 1 and/or 2 (WMV-1 and/or WMV-2) which are common viral pathogens of several cucurbits. A few of these plants, however, yielded the first Florida isolates of a relatively new virus disease of cucurbits, now known as zucchini yellow mosaic virus (ZYMV) (5).

ZYMV was first discovered in 1973 in northern Italy and has since appeared in southern France, Spain, Israel, Morocco, Germany, northeast U.S. (3), and most recently Florida. At present, ZYMV has been collected from eight counties in south, central, and north Florida (5). The disease is becoming widespread geographically, and it has the potential to seriously reduce zucchini squash yield. ZYMV also systemically infects and causes mosaic symptoms in Cucumis melo L. (cantaloupe), Cucumis sativus L. (cucumber), and Citrullus lanatus (Thumb.) Mansfeld (watermelon) (4,5). A wild perennial cucurbit, Melothria pendula L., also serves as a host and potential reservoir of the pathogen (1).

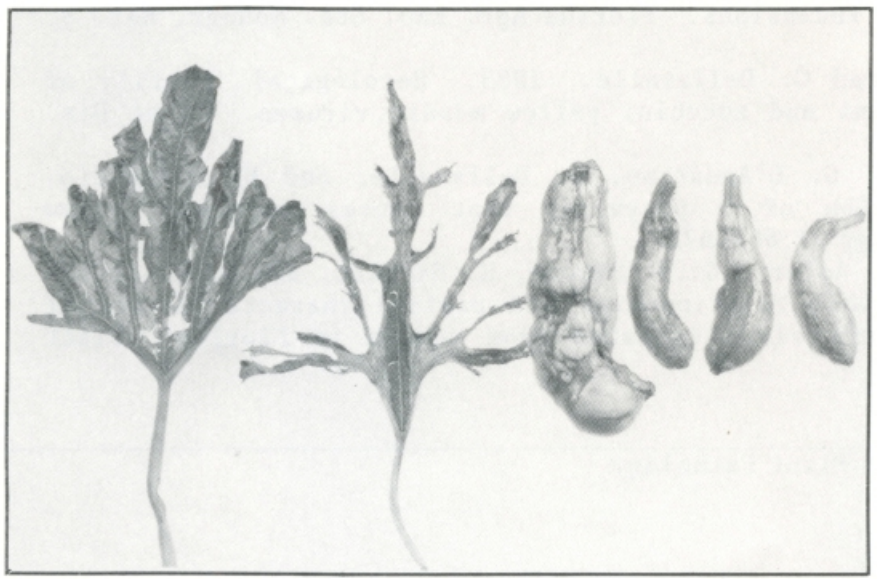

Fig. 1. Leaves and fruit of zucchini showing severe distortion characteristic of ZYMV. (DPI Photo #702877-9 by V. Jane Windsor)

SYMPTOMS. ZYMV infection dramatically alters normal leaf and fruit shape, size and color. Leaf symptoms include veinal chlorosis, veinbanding, blistering, and strapleaf (see Fig. 1). Foliar symptoms of ZYMV are similar to hormonal herbicide (2,4-D; 2,4,5-T, etc.) injury. Fruits on infected plants display pronounced chlorotic bumps, malformations, and stunting. Plants are severely stunted and yields greatly reduced.

CAUSAL AGENT. ZYMV, WMV-1, and WMV-2 are all members of the potyvirus group. This the largest group of plant viruses and may be the most

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devastating of the viruses which affect vegetable plants. Potyviruses induce unique cylindrical inclusions which are detectable in plant cells through light microscopy (2). These inclusions enable the diagnostician to assign the virus to the potyvirus group. Additional morphological characteristics and serological relationships permit the assignment to one of three subdivisions within the group. Laboratory diagnostic procedures are required for positive identification since other cucurbit viruses can cause similar symptoms. Whole plants are best for accurate diagnosis.

DISEASE DEVELOPMENT AND SPREAD. Zucchini plants of all ages are susceptible to ZYMV. Symptoms are expressed 10-12 days after plants are inoculated. The virus is naturally transmitted in a styletborne manner by Myzus persicae Sulz. (green peach aphid) and Aphis citricola V. D. Goot (citrus aphid) (5), and perhaps other common potyvirus vectors which have not yet been tested. Once plants are infected, yield drops dramatically to essentially nothing (1).

CONTROL. Aphid vectors must be controlled to stop the spread of ZYMV. Infected plants should be rogued and destroyed whenever detected.

SURVEY AND DETECTION. Look for veinal chlorosis, mottling, blistering, vein banding, and severe leaf distortion on squash and other cucurbits. Zucchini fruits on infected plants show chlorotic bumps, malformation, and stunting.

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